

ABSTRACT

[0059] The present invention introduces method and apparatus comprising an improved design for the high-pressure electrocoagulative treatment of aqueous and viscous fluids and sludge. The apparatus is configured as a plate and frame design utilizing hydraulic or screw type mechanical closure on a plurality of recessed, gasketed, non-electrically conductive electrocoagulation spacer plates, hereafter referred to as spacer plates, that completely enclose and isolate all fluids, electrical contacts, and electrodes within the confines of the apparatus. The spacer plates include integral supports on their edges that position and support said spacer plates with enclosed electrodes on top of the side rails of the supporting frame of the apparatus allowing said spacer plates to be separated for electrode replacement and maintenance and conversely closed, pressured and put into service. The apparatus also includes a baffled influent and effluent chamber at both ends for the addition and flash mixing of chemical reagents and/or flocculants and that provide a means of fluid communication between fluid conduits and chambers formed within the apparatus by the interconnection of gasketed ports and cavities located in the spacer plates and external conduits thus allowing fluids to enter and exit the apparatus. Various physical, mechanical and/or organic separation means are utilized determined by influent fluid characteristics and the desired goals and objectives of treatment.